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| Lesson Title: | | Creating Bar Graphs Using Microsoft Excel | | | | | | | | |
| **Teacher:** | Amy Nelson | | **Hour:** | | 2, 4, 5 | | | | |
| **Unit:** | Probability and Statistics | | **Target Grade Level:** 6 | | | | | | |
| **Course:** | 6th Grade Math | |  |  | |  |  |  |

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| **Learning Target(s):** | Students will construct a bar graph using Microsoft Excel. |
| **Criteria for Success:** | 1. Did I select the appropriate type of graph? 2. Is all data entered correctly? 3. Is the beginning and end for horizontal and vertical axis correct? 4. Is the scale appropriate? 5. Did I include a title, horizontal axis label, vertical axis label, and include units in the label (if necessary)? Did I label the bars. |
| **Progression of Learning:** | Hand drawn graphs noting all important components of graph, creating data tables, creating line graphs (and other types of graphs), self-assessing graphs using rubric, cutting and pasting graph and table into word for presentation, citing source of data, analyzing graph |

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| **Content Area Standards, Essential Learnings, and Evidence Outcomes** | **21st Century Skills and Abilities** | **ISTE NET-S, ITEEA, or L4L Standards Addressed** |
| 5.2a Read, use, and create scales on a number line or graph.  3.1a Construct interpret, and draw conclusions from a bar graph.  . | * Collaboration and Teamwork * Critical Thinking, Reasoning, and Problem Solving * Invention, Innovation, and Creativity * Self-Direction * Information Literacy * Global Awareness * Inquiry Questions * Relevance and Application * Nature of Discipline | Standard 3: The information literate student uses information accurately and creatively.  3.1 Organizes information for practical application. |

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| **Pre-Assessment Summary** |  | **Post-Assessment Summary** |
| Pre-assesment was done on paper with bar graphs, and then informally regarding graphing in Excel. Students lacked any basic knowledge in Excel, prior to the first Excel lesson. |  | In addition to grading student’s graphs using the rubric, students were required to create a bar graph in Excel on their final exam. Considering the limited amount of knowledge students had prior to our first Excel lesson, I was very impressed with the outcome. I am confident this is a skill students will retain and be able to use for practical application. |

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| **Summary of Differentiation Strategies and Students** |  | **Summary of Research Based Instruction Strategies** |
| This particular activity did not require a lot of differentiation. In fact, many of the students that typically struggle with pencil/paper tasks excelled in this lesson. Some students required more one-on-one. With these students I sat them next to a classmate who was more comfortable using the program that could help me in answering questions. Students that became comfortable with Excel and completed the activity quickly were given explore time. They were told they must show me at least 3 interesting things they figured out about Excel. I was quite impressed with what they came up with! |  | Student and teacher will focus on learning goals, evaluate current work as it relates to the goal, and then make necessary adjustments while working towards the goal.[[1]](#footnote-1) We will do this through the use of a rubric and peer evaluation. Students will continue to evaluate their work and adjust as necessary to ensure they meet all criteria for success. |

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| **Technology Materials and Resources** |  | **Other Materials and Resources** |
| -Computer for each student with Microsoft Office  -LCD screen or projector for modeling |  | - Passport textbook |

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| **Student Self-Assessment Strategies** |  | **Student Goal Setting Strategies** |
| Students will use the rubric provided to self-assess the graph and table they created. |  | Students set goals based on their hand-drawn graphs. Looking at the bar graph they drew using pencil and paper, what could you improve upon when working in Excel? |

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| **Tier 1 Interventions (Universal) and Students** |  | **Strategically Planned Questions** |
| Whole group modeling  Rubric  Partner evaluation |  | What is the difference between a column chart and a bar graph in Excel?  What is a stacked bar graph (or column chart)?  Did you select an appropriate graph?  Did you use the correct beginning and end for the horizontal and vertical axis?  Is the scale appropriately numbered? If not, how could you fix it?  Did you include a title, labels, and units in labels? |

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| **Tier 2 Interventions (Targeted) and Students** |  | **Vocabulary** |
| Whole group modeling  Rubric  Partner evaluation  Opportunity to revise |  | Cell  Table  Column  Row  Chart  Data  Horizontal/vertical axis  Label  Column chart  Bar chart (graph) |

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| **Tier 3 Interventions (Intensive) and Students** |  | **ELL Strategies** |
| Whole group modeling  Rubric  Partner evaluation  Extra time (teacher open lab at 8 for students who need more time with Excel) |  | -Model vocabulary  -Showing each vocab. word by pointing/highlighting etc. on LCD, and have student’s do the same on their individual computer |

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|  | Activities and Lesson Procedures | Pacing |
| **Motivation (hook)** | When looking at graphs in the newspaper, presentations, etc., do you ever see a hand-drawn graph?  (Show a hand-drawn graph and an Excel graph) Which one is more appealing? Which one would you rather include in a presentation you were giving? Would you believe me if I told you this one (excel) probably took me less than ½ the time of this one (hand drawn)? | 5 |
| **Introduction** | Today, we are going to learn how to create bar graphs in Excel. We looked at 5.6 in the textbook? We are going to graph these tables, however, we will be graphing them using Microsoft Excel. We are actually going to use Microsoft Word today to answer the questions, use Microsoft Excel to create the graphs, and then copy and paste the graphs into our Microsoft Word document. | 3 |
| **Direct Teaching** | Explain the difference between column chart and bar chart in excel.  Show students how to enter the data into a table, highlight the table, and create a chart.  Explain how to use the toolbox.  Remind students how to set up their Microsoft Word document, and show how to copy and paste a graph into the Microsoft Excel document. Point out that changing the size of the graph will also change the scale, unless you change it manually. | 5 |
| **Guided Practice** | Walk through an example using the LCD screen. Students have rubric in hand. Have students use the rubric to assess whether all criteria for success has been met in the example. | 10 |
| **Feedback** | Feedback will be given using the rubric (see attached), as well as the overall appearance of the graph. | Throughout the lesson |
| **Independent Practice** | 5.5, pg. 244, #1-12 | 20 |
| **Closure** | Today our goal was to create bar graphs in Excel.  Did anyone find anything new with Excel they would like to share?  Review criteria for success, while students look at their graphs to ensure they have all components-   1. Did I select the appropriate type of graph? 2. Is all data entered correctly? 3. Is the beginning and end for horizontal and vertical axis correct? 4. Is the scale appropriate? 5. Did I include a title, horizontal axis label, vertical axis label, and include units in the label (if necessary)? Did I label the bars? | 7 |

1. Moss, Connie M., and Susan M. Brookhart. "Chapter 1/The Lay Of The Land: Essential Elements Of The Formative Assessment Process." *Advancing Formative Assessment in Every Classroom: a Guide for Instructional Leaders*. Alexandria, VA: Association for Supervision and Curriculum Development, 2009. Print. [↑](#footnote-ref-1)